## ABSTRACT OF THE DISCLOSURE

The present invention provides a method of optimizing a painting process for applying a paint layer on an article. The method comprises defining a functional relationship paint processing parameters and a paint layer property (i.e., the average paint layer thickness) using a neural network. This functional relationship is then used in a paint optimization function that measures a combination of quality control parameters and efficiency parameters. Finally, the paint optimization function is optimized by adjusting the paint processing parameters utilizing the functional relationship formed by the neural network. The invention also provides a system that implements the methods of the invention.